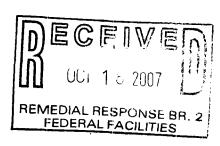
LPC 0316585010--Cook County Chicago / Peoples Gas Crawford Station Former MGP SF/HRS

Volume - 1 **CERCLA ABBREVIATED PRELIMINARY ASSESSMENT** EPA Region 5 Records Ctr. 300555

Prepared by:
Office of Site Evaluation
Division of Remediation Management
Bureau of Land

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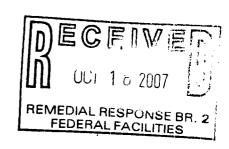
#### ABBREVIATED PRELIMINARY ASSESSMENT

for:

## PEOPLES GAS CRAWFORD STATION FORMER MGP ILN #000510192 CHICAGO, ILLINOIS

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

**OCTOBER 4, 2007** 



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#### **Section 1.0 Introduction**

On April 11, 2007, the Illinois Environmental Protection Agency's (Illinois EPA's) Office of Site Evaluation (OSE) was tasked by the Region V Offices of United Environmental Protection Agency (U.S. EPA) to conduct a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Abbreviated Preliminary Assessment (APA) at the previous location of the Peoples Gas Crawford Station Former MGP (Crawford Station MGP) coal gasification site at 3500 S. Pulaski Road (formerly Crawford Ave.), Chicago Illinois. This property is located in the southeast ¼ of Section 34, Township 39 North, Range 13 East, of the Third Principal Meridian. Latitudinal and longitudinal coordinates of the property are 41.82960 N, 87.72420 W.

The National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR Part 300) requires that a CERCLA APA be performed within twelve months of a sites entry into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS).

An APA is the initial step in the Superfund investigative process that utilizes a limited-scope investigation and collects readily available, previously documented information. The CERCLA Preliminary Assessment is designed to distinguish between sites that pose little or no threat to human health or the environment, and those that may require further investigation. The CERCLA APA also supports emergency response or time critical removal activities, fulfills public information needs, and generally furnishes appropriate information about the site early in the assessment process.

If the findings of the APA determine that further investigation is warranted, the site will continue to progress through the Superfund investigative process, and receive a CERCLA Site Inspection. The CERCLA Site Inspection will evaluate the extent that a site presents a threat to human health and/or the environment. This may be accomplished by collecting and analyzing wastes and environmental media samples to determine whether hazardous substances are present at the site and are migrating to the surrounding environment.

The Site Inspection will provide necessary information that will help determine if the site qualifies for possible inclusion on the National Priorities List, or should receive a No Further Remedial Action Planned (NFRAP) designation. At any time throughout the Superfund investigative process, the site may be NFRAP'ed, be referred to another state or federal clean-up program, or recommended for further investigation. The Preliminary Assessment is performed under the authority of the CERCLA commonly known as Superfund.

## **Section 2.0 Site Background**

#### **Section 2.1 Site Description**

The original Crawford Station MGP site occupied approximately 260-acres of land located just west of South Pulaski Road between the Chicago Sanitary and Ship Canal (Canal) to the south and the Illinois Central Gulf Railroad to the north. (Figures 1 & 2). Since 1966, when the Peoples Gas Light and Coke Company (Peoples Gas) sold 146-acres of the original 260-acre parcel, the site has been divided into several smaller parcels with multiple owners. A 1992 Preliminary Investigation Report performed for Peoples Gas indicated that Peoples Gas still owned roughly 64-acres of the site which was used as a peak shaving unit and city gate station (Hanson Engineers Inc., 1992). A Peoples Gas representative indicated that Peoples Gas owns four parcels totaling roughly 110 acres of the original Crawford Station MGP site. Peoples Gas has enrolled approximately 35 acres of the remaining property in the Illinois EPA's Site Remediation Program (SRP) in pursuit of a No Further Remediation (NFR) Letter. Analytical data used in this report was obtained from the 35-acre Peoples Gas parcel (Figure – 3, Parcels A & B). Other property owners on the original 260-acrea track include trucking companies, an electrical substation, a chemical factory, and packaging and distribution companies. A good portion of the site is used for semi-trailer parking. The majority of the site excluding a strip

along the southern most portion of the site is covered by buildings, asphalt, concrete and gravel.

The property is reportedly zoned Motor Freight Terminal District (C4) with the surrounding area zoned the same (Burns & McDonnell, 2001). Other commercial and manufacturing companies exist to the northwest, west, east and south beyond Interstate-55. A residential area is located across the railroad tracks to the northeast along W. 33<sup>rd</sup> Street. Another residential neighborhood is present to the northwest of the site. A park containing several baseball diamonds is also located just beyond the railroad tracks to the north.

Most of the former Crawford Station MGP site is flat with the exception of a ditch along the railroad tracks on the west side of the site. Regional surface water in the vicinity of the site is expected to flow south towards the Canal; however, variations across the site exist. Based on USGS topographic mapping and site observations, the natural surface water runoff is to the south toward the Canal. A 1938 aerial photo of the site indicates that the former West Fork of the South Branch of the Chicago River (West Fork) divided the northern third of the 260-acre site at a slight angle from the northeast to the south west (Figure - 4). It appears that the West Fork may have been terminated at the railroad track embankment. It also appears that an 18-foot by 14-foot concrete sewer may have been used to discharge water from the terminal point of the former West Fork to the Canal (Burns & McDonnell, 2001). Although filled in upon redevelopment of the property, the former West Fork channel is still mildly apparent in the site topography. Storm water runoff for covered areas and roadways is controlled by storm sewers which enter the city's combined sewer system (Hanson Engineers Inc., 1992). Two sewer lines are present on the southeast corner of the property and appear to discharge into the Canal (Figure - 5). The two sewer lines are shown in green and TarGOST™ borings are located in the Canal adjacent to the discharge points. Four gas lines parallel the Canal and the southern edge of the property before turning south. One 42inch gas line is shown to cross the Canal in Detail A of Figure-5.

Free phase contamination was observed at the surface in portions of the Peoples Gas property during a site reconnaissance in August of 2007. The area of free phase contamination was located in a grassy section of the property near the southern edge of the site (Figure -2). The four gas lines appear to pass through the area of free-phase contamination. Infiltration and runoff can be expected in the area of observed contamination.

Published information regarding the regional geology of the Chicago area indicates that bedrock formations underlying glacial drift consist of sedimentary rocks formed by the advance and retreat of shallow seas across northern Illinois. A structural high known as the Kankakee Arch controls the orientation of sedimentary rock units in the Chicago area, which have a gentle regional dip to the east and south of about 10 feet per mile (Larson, et. al., 1959). Sedimentary rock formations underlying glacial drift in the Chicago area consist primarily of Silurian aged dolomites. The Silurian dolomites are divided into two series, the Alexandrian Series and the Niagaran Series. The strata are almost entirely dolomite that varies from extremely argillaceous, silty, and cherty to exceptionally pure (Willman, 1971). The Silurian dolomites reach a maximum thickness of nearly 500 feet in the southeastern part of the region. Both Ordovician and Cambrian aged sedimentary rocks are present beneath the Silurian dolomites. The Ordovician system consists primarily of dolomite and limestone formations; however, some sandstone units are present. The Cambrian system is largely sandstone in the lower half, and the upper half is dolomite, sandy dolomite, sandstone, and siltsone (Willman, 1971).

Glacial drift thickness in the Chicago area may be less than 50 feet thick, or between 50 feet and 200 feet thick (Piskin and Bergstrom, 1975). This may in part be due to existence of various east-west trending bedrock valleys that are directed toward Lake Michigan (Larson, et. al.,1959). The Quaternary Deposits of Illinois map (Lineback, 1979) indicates that glacial drift deposits in the Chicago area consist of either the Carmi Member or Dolton Member of the Equality Formation. The Equality Formation consists of offshore glacial lake deposits of silt and clay, and near shore deposits of sand and gravel. The Carmi Member

consists of quit-water lake sediments dominated by well bedded silt and some clay (Lineback, 1979). In most cases these lake deposits are only a few feet thick, rarely as much as 20 feet thick (Willman, 1971). The Dolton Member consists largely of shallow-water near shore lake sediments in beaches, bars, spits, and deltas. They are dominantly medium grained sands (Lineback, 1979). The Dolton Member is generally less than 10 feet thick, but may be as much as 25 feet thick (Willman, 1971). The Equality Formation may be covered by a thin layer of wind blown silt. The Wedron Formation may be present beneath the Equality Formation. The Wedron Formation consists predominantly of glacial till and averages 100 feet thick throughout the Chicago area (Willman, 1971).

Roughly 94 soil probes/borings were completed on the 35-acre Peoples Gas parcel as part of a site investigation performed in March and May of 2001 (Burns & McDonnell, 2001). Soil probes were advanced to a maximum depth of 24 feet. Subsurface materials consist of fill material 0-9 feet thick, followed by a native layer of brown to brown/gray silty clay up to 14 feet thick, followed by a brown/gray silty clay (presumably the Carmi Member of the Equality Formation).

Groundwater resources in the Chicago region are developed from four aquifer systems: 1) sand and gravel deposits of glacial drift; 2) shallow dolomite formations, mainly of Silurian age; 3) Cambrian – Ordovician Aquifer, of which the Ironton – Galesville and Glenwood – St. Peter Sandstones are the most productive formations; and 4) the Mt. Simon Aquifer, consisting of sandstone of the Mt. Simon and lower Eau Claire Formations of Cambrian age.

Water-yielding localized sand and/or silt lenses, and to a greater extent, sand and gravel deposits occur in the drift, particularly in valleys cut into bedrock. Silurian age dolomite, which is widely used as a source of groundwater, is the upper most bedrock formation in the region and considered as the shallow dolomite aquifer. The glacial drift and the shallow dolomite aquifers are hydrologically connected and are recharged directly by seepage from precipitation. They are separated from the Cambrian – Ordovician Aquifer in most of the region by the relatively impervious Maquoketa Group Shale. The Cambrian - Ordovician Aquifer rises westward and is recharged at the surface or

through glacial deposits west of the outcrop area of the Maquoketa Shale along the western edge of the Chicago region (beyond the western boundaries of Lake, Du Page, Cook, and Will Counties) (Willman, 1971). The Cambrian – Ordovician Aquifer is separated from the Mt. Simon Aquifer by the shaly and silty beds of the Eau Claire Formation that prevents flow between the aquifers. The Mt. Simon Aquifer has a higher artesian pressure than the other aquifers, but the water quality in the eastern part of the Chicago region is not acceptable for many uses. This aquifer is recharged largely from the outcrop region of Cambrian rocks in central southern Wisconsin (Willman, 1971).

The Cambrian – Ordovician Aquifer has been the most highly developed bedrock aquifer, however, approximately 60 percent of the total pumpage in the Chicago region is from the glacial drift and shallow dolomite aquifer with no widespread decline in water level.

As indicated above there can be adequate groundwater reserves within the various aquifers in the Chicago region. However, the City of Chicago draws water from Lake Michigan and distributes it throughout the metropolitan and suburban transmission system for drinking water purposes. The City of Chicago has a ground water ordinance and Memorandum of Understanding (MOU) with the Illinois EPA which prohibits the installation of new potable water supply wells within the city limits. Therefore, the likelihood of potable water supply wells within the 4-mile target distance limit is minimal.

The Illinois State Geological Survey (ISGS) and the Illinois State Water Survey (ISWS), do however, indicate that approximately 64 private drinking water wells existed or still exist within a four mile radius around the Crawford Station MGP site (Figure - 6). It appears that the majority of the private wells are industrial/commercial wells rather than private individual wells and are installed at depths greater than 1000 feet. The closest private water supply well is located roughly three quarters of a mile from the Crawford Station MGP site and is 1558 feet deep. The potential for this well to be contaminated from MGP wastes associated with the Crawford Station MGP site is minimal. Illinois EPA databases indicate that there are no community water supply wells within the 4-

mile target distance limit. Only one non-community water supply well may be located within the 4-mile target distance limit, and was between the 3-4 mile range. No additional information was available regarding this well. It is not known how many of the recorded wells are currently in use.

#### **Section 2.2 Site History**

According to the Burns & McDonnell Site Investigation Report, in 1921, the Koppers Company of Pittsburgh and Peoples Gas entered into an agreement whereby Koppers built and financed the Crawford Station MGP (Burns & McDonnell, 2001). Under contract, the Chicago By-Product Coke Company was formed to own and operate the plant. Peoples Gas then bought the gas and coke manufactured at the plant for distribution to consumers. In 1938, Peoples Gas acquired the Chicago By-Product Coke Company. MGP facilities at the Crawford Station MGP site were reported to have included 151 coke ovens, nine water gas sets, and two 10 million cubic foot water-seal gas holders. By the late 1930's, the Crawford Station MGP produced three types of gas: coke oven gas, carbureted water gas, and reformed gas (Hanson Engineers Inc., 1992). Modifications to the plant during the 1930's included construction of a light oil refining plant, addition of liquefied petroleum (LP) gas peak shaving facilities, and conversion of five of the nine water gas sets to produce reformed natural gas and later oil gas. Forty 30,000 gallon LP tanks were reportedly installed in 1957. The predominant by-product produced by the gas manufacturing plant was coal tar. Tars were reportedly sold to other companies for reuse. By-products were stored on site in tanks. By 1956, the Crawford Station MGP was only used to supply gas and coke when demand was high. Production was permanently halted in 1963, and the station was retired in 1965. Dismantling activities began in 1956; however, the gas holders were not dismantled until 1965. Peoples Gas sold 146 of the 260 acre site to First American Realty Company in 1966. Peoples Gas kept 64 acres for use as a city gate regulating and metering facility and propane peaking facility (Hanson Engineers Inc., 1992).

Figure - 4 is a 1963 site map of the Crawford Station MGP site (Hanson Engineers Inc., 1992). It shows the location of various buildings, tanks, and storage areas. In 1948, Peoples Gas leased and later sold about 10-acres in the south central portion the of site to the Institute of Gas Technology (IGT). In roughly 1976, Commonwealth Edison (ComEd) purchased about 40 acres on land from First American Realty on the east side of the site and built and electrical substation. At the time of the site reconnaissance, the Peoples Gas representative indicated that the ComEd property was where the two 10 million cubic foot gas holders were located. It was indicated that ComEd conducted some type of remediation of MGP wastes after acquisition of the property.

In December of 2000, Peoples Gas enrolled a 35-acre parcel of the property into the Illinois EPA's Site Remediation Program (Figure - 2). The 35-acre parcel is located on the southwestern portion of the Crawford Station MGP site and is currently used for storage of intermodal boxes for XTRA Intermodal. A site investigation was conducted in March and May of 2001. The site investigation included 94 soil probes, 3 soil borings, and one hand auger boring. Nine (9) soil probes and three (3) soil borings were converted to 2-inch monitoring wells. Various Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) were found to exceed applicable soil corrective action objectives in soil. Benzene and some SVOCs were found to exceed applicable ground water corrective action objectives (Burns & McDonnell, 2001).

#### **Section 2.3 Regulatory Status**

Based upon available file information the Crawford Station MGP site does not appear to be subject to Resource Conservation and Recovery Act (RCRA) corrective action authorities. Information currently available does not indicate that the site is under the authority of the Atomic Energy Act (AEA), Uranium Mine Tailings Action (UMTRCA), or the Federal Insecticide Fungicide or Rodenticide Act (FIFRA). Roughly 35-acres of the remaining Peoples Gas property was enrolled in the State of Illinois' Voluntary Cleanup Program, or SRP. A site

investigation was conducted on the 35-acre parcel in March and May of 2001. In February and March of 2007, Burns & McDonnell performed a sediment investigation in the Canal.

## **Section 3.0 Field Inspection Activities**

## **Section 3.1 Field Inspection**

The Illinois EPA's Office of Site Evaluation (OSE) conducted a site reconnaissance (recon) of the Crawford Station MGP site in August 14, 2007. OSE staff was accompanied by two Peoples Gas representatives during the recon. The site recon began at the south end of the Peoples Gas property where free-phase contamination was observed at the surface in a grassy area (Figure – 2). The remainder of the site recon consisted of a drive around the original 260 acre site. Peoples Gas representatives discussed former and current property ownership status and answered Illinois EPA question. Illinois EPA observations are discussed in the Site Description portion of this report.

#### **Section 3.2 Analytical Data**

No analytical data was generated as a result of the field inspection activities.

#### **Section 3.3 Past Environmental Investigations**

In February 1992, Peoples Gas contracted Hanson Engineers
Incorporated to conduct a Preliminary Site Investigation of the entire 260-acre
site. The objectives of the report were to determine if there was a potential for
contamination, assess the degree of potential contamination, and assess the
impacts of potential contamination on human health and the environment. No
visual evidence of surface or subsurface contamination was observed during the
site inspection. Access was apparently restricted by fencing. Various off site
potential sources of contamination were identified in the report, as well as on site
sources. On site sources were limited to various current owners and operators
present on the 260-acre site, rather than MGP related activities.

In December of 2000, Peoples Gas enrolled a 35-acre parcel of the property into the Illinois EPA's SRP (Figure - 2). The 35-acre parcel is located on the southwestern portion of the Crawford Station MGP site and is currently used for storage of intermodal boxes for XTRA Intermodal. In March and May of 2001, Burns & McDonnell performed a site investigation of the 35-acre parcel and completed 94 soil probes, 3 soil borings, and one hand auger boring. Nine (9) soil probes and three (3) soil borings were converted to 2-inch monitoring wells. During the site investigation, odors, staining, and small to large amounts of tars were observed in three separate areas (Figure -7). The largest area was located in the southwest section of the 35-acre parcel and was classified as source material. A hard layer of tar saturated soil was identified from the surface to about four feet below the surface. Tar was present from 8-13 feet below ground surface (bgs) in fractures in the silty clay beneath the tar saturated soil. The second area was in the north central section of the site and included odors, staining, and small amounts of free-phase contamination. This area was also classified as source material. Green soil staining and faint to strong odors were present from 7-13 feet bgs in this area. Tar was observed in silty clay fractures from 15.5 feet to 16.5 feet bgs. The third area is in the northwestern section of the 35-acre parcel where coal tar odors and tar were observed in silty clay fractures from 10.5 feet to 12 feet bgs.

VOCs, SVOCs, and metals were found at elevated concentrations in soil samples collected during the site investigation. No VOCs were found at concentrations exceeding U.S. EPA Removal Action Levels (RALs). Surface and subsurface soils contained SVOC concentrations exceeding RALs. Arsenic was found at concentrations above the residential RAL in subsurface soil. On site soil in the top two feet of material were found to exceed Soil Chemical Data Matrix (SCDM) benchmarks for benzene, arsenic, mercury, and eight (8) Polycyclic Aromatic Hydrocarbons (PAHs). Contaminant concentrations were found to exceed background concentrations meeting observed release criteria.

Twelve soil probe/boring locations were converted to 2-inch PVC ground water monitoring wells on the 35-acre parcel evaluated by Peoples Gas. One

ground water sample was collected from all but one well, which was dry at the time of sampling. Ground water samples were collected using a peristaltic pump and polyethylene tubing. Ground water samples were analyzed for priority pollutant metals, VOCs, SVOCs, and total and amenable cyanide. Benzene, arsenic, benzo(a)pyrene, and naphthalene were found on site to exceed the ground water RALs. Ground water concentrations for benzene, arsenic, benzo(a)anthracene, benzo(k)fluoranthene, benzo(a)pyrene, and naphthalene were found to exceed SCDM benchmarks. Ground water contaminant concentrations were found greater than three times background, thus meeting observed release criteria. Water level measurements from the monitoring wells ranged from 3.03 feet below ground surface (bgs) to 15.97 feet bgs, with one well being reported dry. The ground water flow direction appears to be to the north away from the Canal. The ground water flow direction may be toward the former West Fork which bisected the Crawford Station MGP site from the northeast to the southwest (Figure - 4).

In February and March of 2007, Burns & McDonnell performed a sediment investigation in the Canal. Fifty-two (52) TarGOST™ Logs were collected from three general locations in the Canal adjacent to the former Crawford Station MGP site (Figure - 5). The three sample areas appear to be located where underground utilities either intersect or cross the Canal. Soil borings were performed at seven of the 52 locations to characterize the subsurface materials. Twelve (12) soil/sediment samples were collected from the seven (7) boring locations for laboratory analysis and fingerprinting. The samples were laboratory analyzed for VOCs and SVOCs. Sample depths ranged from the sediment surface to 14 feet below the sediment surface.

Interpretation of the fingerprinting analysis suggested that four of the samples came from the same source and were classified as carbureted water gas (CWG) tar (Burns & McDonnell, April 2007). Two other samples showed similar characteristics and were classified as coal carbonization (CC) tar. These two samples have similar characteristics to known CC tars, coke oven tars, and creosote samples. The other six samples appear to be the result a combination

of sources. They include coke or gas production from coal or oil, coal tar based products such as roofing, pavement sealers, water proofing, pesticides, crude oil and crude oil derivations such as gasoline, heating oil, and asphalt.

Sediment samples were analyzed using laboratory method EPA 8270M. Compounds detected include BTEX (benzene, toluene, ethylbenzene, and xylenes) and a large number of SVOCs. These compounds are similar to those found in source areas on site and substantiate an observed release to surface water and attribution. Sediment concentrations for various VOCs and SVOCs were found to exceed acceptable sediment benchmarks and qualify as Level II contamination.

### **Section 4.0 Potential Sources**

Potential sources of contamination at the Crawford Station MGP site consist of former MGP structures and contaminated soil. The following sections discuss these potential sources.

#### **Section 4.1 Former MGP Structures**

Figure - 8 is a drawing of the former Crawford Station MGP and the structures present at the time of operation. Figure - 4 is a 1938 aerial photo of the site which shows Crawford Station MGP features. Structures present on site included above grade structures, storage tanks, and gas holders. Dismantling of the station began in 1956 starting with portions of the coke oven plant. The remainder of the station was dismantled in 1965. This included the two 10 million cubic feet gas holders. Based on available information, the only remaining Crawford Station MGP structures consist of buildings. According to Peoples Gas representatives, the two 10 million cubic feet gas holders were located where the ComEd electrical substation is currently located. It is not clear whether the below grade portion of the holders still exists, or if they were removed at the time dismantling activities occurred. It is not known if contaminated soil was present near the gas holders or if it was removed when dismantling activities occurred.

Peoples Gas representatives indicated that ComEd performed some remedial activities during construction of the electrical substation.

Since it is unclear whether below ground structures or related soil contamination exists in these areas, these potential sources will have to be excluded from consideration in this report. However, the existence of underground utility corridors could provide an avenue for subsurface contaminant migration should it exist in areas where former Crawford Station MGP structures were located.

#### Section 4.2 Contaminated Soil

The Burns & McDonnell site investigation report identified three areas on the 35-acre Peoples Gas property where odors, staining, and varying amounts of tar were observed (Figure – 7). The largest area was located in the southwest section of the 35-acre parcel and was classified as source material. A hard layer of tar saturated soil was identified from the surface to about four feet below the surface. Tar was present from 8-13 feet below ground surface (bgs) in fractures in the silty clay beneath the tar saturated soil. Based on chemical analysis, impacted soil meets the definition of observed contamination, and meets the observed release criteria as defined in the HRS. Based on soil boring information and soil sample data collected during the Burns & McDonnell site investigation, the volume of contaminated material has been calculated as 312,000 cubic feet. The contaminated area was calculated from area 300' x 520' x 2'. This is a conservative estimate since portions of the contaminated area are as much as 14 – 16 feet in depth.

The second area was in the north central section of the site and included odors, staining, and small amounts of free-phase contamination. This area was also classified as source material by Burns & McDonnell. Green soil staining and faint to strong odors were present from 7-13 feet bgs in this area. Tar was observed in silty clay fractures from 15.5 feet to 16.5 feet bgs. Contamination in this area also met observed release criteria by chemical analysis. The volume of

contaminated material at this location was calculated to be 130,900 cubic feet. This was based on an area 170' x 110' x 7'.

The third area is in the northwestern section of the 35-acre parcel where coal tar odors and tar were observed in silty clay fractures from 10.5 feet to12 feet bgs. Although this material meets observed release criteria, it will not be included in the waste quantity calculations.

Hazardous substances detected by chemical analysis in the contaminated soil source areas include BTEX, PAHs, and metals. The source area has been assigned a containment factor value of 10 since there is no liner, engineered barriers, or containments structures present.

## **Section 5.0 Pathway Discussions**

#### **Section 5.1 Ground Water**

A discussion of regional ground water conditions is presented in Section 2.1 of this report. Based on soil borings from the site, the first water bearing unit encountered at the site is present within/beneath the fill material in an underlying sand/silt unit present on top of a silty clay unit. Water levels from monitoring wells installed on site range from roughly three feet bgs to 16 feet bgs. Analysis of on site ground water samples indicates this water bearing unit has been impacted by MGP wastes or contaminated soil. Soil borings were not advanced beyond 25 feet bgs during the Burns & McDonnell site investigation, but based on published geological information glacial drift is at least 50 feet thick in the area. Based on the thickness of clay below the contaminated water bearing unit, a hydraulic connection with the underlying Silurian dolomite aquifer is unlikely. Now withstanding, enough data is not available at this time to rule out a hydraulic connection between the aquifers.

The Silurian dolomite formation was typically the uppermost aquifer utilized for water supply in the Chicago area prior to the current public water supply system. The majority of the residential water supply in the Chicago area is obtained from Lake Michigan. The City of Chicago has a ground water

ordinance and MOU with the Illinois EPA which prohibits the installation of new potable water supply wells within the city limits. Therefore, the likelihood of potable water supply wells within the 4-mile target distance limit is minimal. The ISGS and the ISWS, do however, indicate that approximately 64 private drinking water wells existed or still exist within a four mile radius around the Crawford MGP site (Figure - 6). It appears that the majority of the private wells are industrial/commercial wells rather than private individual wells and are installed at depths greater than 1000 feet. The closest private water supply well is located roughly three quarters of a mile from the Crawford Station MGP site and is 1558 feet deep. The potential for this well to be contaminated from MGP wastes associated with the Crawford Station MGP site is minimal. Illinois EPA databases indicate that there are no community water supply wells within the 4mile target distance limit. Only one non-community water supply wells was located in the 4-mile target distance limit, and was between the 3-4 mile range. No additional information was available regarding this well. It is not known how many of the recorded wells are currently in use. The following table is a summary of potential targets via the ground water pathway.

#### **ESTIMATED GROUNDWATER TARGET POPULATION**

Distance Category (miles)	ISGS Well Logs	Non-Community Water Supply Targets (individuals)	Total Population (individuals)
0 - 1/4	0	0	0
1/4 - 1/2	0	0	0
1/2 - 1	1	0	3
1-2	8	0	22
2 – 3	22	0	60
3 – 4	33	15	105

Total = 190

Target population calculated using a Chicago average household population of 2.7, as established by the U.S. Census Bureau, and Illinois EPA Source Water Assessment database.

Due the lack of potential targets for the ground water pathway, and the unlikely hydraulic connection between the shallow contaminated water bearing

unit and the Silurian dolomite aquifer, the ground water pathway is not anticipated to generate a high enough HRS score to be further evaluated. Should additional evidence become available that suggests shallow ground water within the 4-mile target distance limit is being used for public consumption, a reevaluation of the ground water pathway may be warranted. Although vertical migration of Crawford Station MGP contaminated ground water is not anticipated, migration of contaminated ground water through man made pathways (ie. utility corridors) to the Canal is a possibility.

#### **Section 5.2 Surface Water**

The majority of original 260-acre Crawford Station MGP site, excluding a strip along the southern most portion of the site, is covered by buildings, asphalt, concrete and gravel. Storm water runoff from the site and the potential for infiltration of surface water exists at the site. Surface water runoff is controlled primarily by storm sewer drains which enter the city's combined sewer system. The sewer water is sent through a sewage treatment plant before being discharged to a surface water body.

Subsurface materials consisted of fill material 0-9 feet thick, followed by a native layer of brown to brown/gray silty clay up to 14 feet thick, followed by a brown/gray silty clay (presumably the Carmi Member of the Equality Formation). The fill material should exhibit relatively high vertical and horizontal permeability, whereas the native silty clay should exhibit low vertical and horizontal permeability.

Based on USGS topographic mapping and site observations, the natural surface water runoff is to the south toward the Canal. A 1938 aerial photo of the

site indicates that the former West Fork divided the northern third of the 260-acre site at a slight angle from the northeast to the south west (Figure - 4). It appears that the West Fork may have been terminated at the railroad track embankment. It also appears that an 18 foot by 14 foot concrete sewer may have been used to discharge water from the terminal point of the former West Fork to the Canal, however this is unsubstantiated at this time (Burns & McDonnell, 2001).

Although filled in upon redevelopment of the property, the former West Fork channel is still mildly apparent in the site topography. Currently, surface water runoff for the majority of the property is controlled primarily by storm sewers which enter the city's combined sewer system. The potential for runoff from the site to the Canal is believed to still exist from the southern section of the property.

Utility corridors or backfill may provide a pathway for Crawford Station MGP contaminant migration to the Canal. As previously mentioned a large concrete sewer located on the west side of the 35-acre Peoples Gas property runs south from the former active area of the Crawford Station MGP site, through the source material, and is believed to discharge to the Canal. The sewer shows up on Figure − 5 as two green lines running north south below Detail A. Also present at the southwestern corner of the property is a 42-inch gas main that parallels the Canal and the former Crawford Station MGP site before turning south and crossing the Canal. The gas main passes very close to the contaminated soil source area, if not through it. Sediment samples and TarGOST™ borings identified tar and contaminated sediments in the Canal near these utility corridors (Figure − 9). Contaminants found in the sediment samples

were the same as those found in the source areas. Contamination present in the Canal meets the observed release criteria.

Two other sewer lines were noted to discharge or terminate at the Canal on the southeastern corner of the site. TarGOST™ borings were installed in the Canal at both of those locations, and analytical samples were collected from the western most sewer discharge area (Figure - 10). Contaminants found in the sediment samples were typical of MGP wastes. No samples were collected on site near the two sewer lines to the east; however, it appears that one western most sewer line is present near the former location of the two 10 million cubic feet gas holders.

For the purpose of this report, the probable points of entry (PPE) will be considered the location where the 48" x 52" clean sewer water line discharges into the Canal, and where the 18' x 14' concrete sewer approaches the Canal. The PPE is the point where the overland segment reaches an eligible surface water body. Conditions in and immediately adjacent to the full length of these sewer lines have not been investigated.

The Target Distance Limit (TDL) extends 15 miles from the PPE in the direction of flow or to the most distant sample point establishing an observed release, whichever is greater. The 15 Mile TDL Map is depicted in Figure - 11 The 15 mile TDL begins at the southern most PPE just east of the railroad bridge that crosses the Canal at the western edge of the site and continues west for 15 miles down the Canal.

The Canal is classified as a fishery and supports mainly carp and other less desirable species (Illinois Department of Natural Resources). Neither fishery supports state or federally listed threatened or endangered species.

According to the Federal Emergency Management Agency (FEMA), the site is not within the limits of the 100 year floodplain for the Canal. According to the Illinois Department of Conservation's Natural Heritage Database there are no federal or state threatened or state endangered species or pristine natural areas occurring in the vicinity of the site. The National Wetland Inventory maps developed by the U.S. Fish and Wildlife Service indicate that there are three recognized wetland areas within the 15-mile target distance limit on the Canal (Figures 11 & 12). The three areas total approximately 3500 feet (0.66 miles) of wetland frontage. Two of the areas are classified as Freshwater Emergent Wetlands (FEMF), and the third area is classified as Freshwater Forested/Shrub Wetland (PFO1C) (Figure – 12). The wetland areas are located approximately 5.5 miles downstream of the PPE. There are no surface water intakes located along the Canal within the 15-mile target distance limit.

#### **Section 5.3 Soil Exposure**

Section 4.2 of this report contains a discussion of the contaminated soil found on site within the 35-acre parcel owned by Peoples Gas.

Contaminated soil identified by chemical analysis as source material is present at the surface meeting observed release criteria for the soil exposure pathway.

Based on the measurements used to calculate the volume of contaminated

material, the calculated are of contamination for the large source area is 156,000 square feet.

The Peoples Gas portion of the Crawford Station MGP site is fenced in industrial property restricting public accessibility to the contaminated soil.

Portions of the site are used for storage of semi-trailers and are not recreationally attractive to the public. No residences are located on or within 200 feet of the contaminated soil. No schools or day care facilities are located within 200 feet of the contaminated soil. Residential neighborhoods are located just northeast of the original 260-acre Crawford Station MGP site, and also to the northwest of the site. A park containing several baseball diamonds is also located just beyond the railroad tracks to the north.

There is no residential population subject to exposure to the contaminated soil other than Peoples Gas employees or semi-truck drivers that are parking trailers on or near the contaminated areas. It is estimated that no more that five and ten people would be present in the area of contamination per day. Below is a table which contains an estimate of the nearby population or those individuals who live or attend school within 1-mile of the area of observed contamination.

#### **ESTIMATION OF NEARBY POPULATION TARGETS**

Distance (Miles)	Population
0 – 1/4	3,026
1/4 - 1/2	11,052
1/2 - 1	46,296

Total = 60,374

Target population calculated using information from the U.S. Dept. of Commerce, Census 2006.

#### **Section 5.4 Air Route**

No air samples were collected as part of the site reconnaissance performed for this report. No air samples were collected from past investigations performed at the Crawford Station MGP site. No visual observation of a release to the air pathway was observed at the time of the site reconnaissance. Therefore, an observed release to the air route has not been documented.

Contaminated source material is known to exist at the surface in the large source area discussed in Section 4.2 of this report. Portions of this area are covered by grass, while others are covered by gravel. This material is generally a tar like substance that cannot be easily transported as particulates via air borne mechanisms. The contaminants of concern do include BTEX however, which are considered to be gaseous hazardous substances and could be more easily transported via the air pathway if volatilized from the tar based material.

Since an observed release to the air pathway cannot be documented, hazardous substances in the source areas could only be evaluated as potential contamination. The target distance limit for the air pathway is four miles. The following table contains an estimate of the target population potentially exposed to hazardous substances identified in source areas at the site. The air route will not be used to score this site since it can only be evaluated for potential expouse.

# INDIVIDUALS POTENTIALLY EXPOSED TO AIR-BORNE CONTAMINATION

Distance (Miles)	Population
0 – 1/4	3,026
1/4 - 1/2	11,052
1/2 - 1	46,296
1 -2	175,378
2 -3	226,289
3-4	301,903

Target population calculated using information from the U.S. Dept. of Commerce, Census 2006.

## **Section 6.0 Summary**

The subject of this CERCLA Abbreviated Preliminary Assessment (APA) is the previous location of the Peoples Gas Crawford Station Former MGP coal gasification site at 3500 S. Pulaski Road (formerly Crawford Ave.), Chicago Illinois. The original Crawford Station MGP site occupied approximately 260-acres of land located just west of South Pulaski Road between the Chicago Sanitary and Ship Canal (Canal) and the Illinois Central Gulf Railroad just south of W. 33 St. (Figures 1 & 2). Construction began in 1921 following an agreement between the Koppers Company of Pittsburgh and Peoples Gas. Production was permanently halted in 1963, and the station was retired in 1965. Since 1966, the original 260-acre parcel, the site has been divided into several smaller parcels with multiple owners. A representative of Peoples Gas indicated that they still own three 30+ acre parcels from the original 260 acres site. Peoples Gas has enrolled approximately 35-acres of the remaining property in the Illinois EPA's SRP in pursuit of a NFR Letter (Figure - 3, Properties A &B). This area is currently used for storage of intermodal semi-trailers for XTRA Intermodal.

The original 260-acre site is currently used for industrial/commercial purposes. The surrounding properties are a mix of industrial/commercial properties and residential neighborhoods. Two residential areas are located north of the former Crawford Station MGP site. A park containing several baseball diamonds is located just north of the former Crawford Station MGP site beyond the railroad tracks which form the northern boundary of the site. The remainder of the former Crawford Station MGP site is surrounded by industrial/commercial properties and the Canal.

A Preliminary Site Investigation of the entire 260-acre site was conducted in February 1992 in order to determine if there was a potential for contamination, assess the degree of potential contamination, and assess the impacts of potential contamination on human health and the environment. In March and May of 2001, a site investigation was performed on the 35-acre parcel enrolled in the SRP. The investigation included the installation of 94 soil probes, 3 soil borings, and one hand auger boring. Nine (9) soil probes and three (3) soil

borings were converted to 2-inch monitoring wells. During the site investigation, odors, staining, and small to large amounts of tars were observed in three separate areas. VOCs, SVOCs, and metals were detected at elevated levels in on site soils. VOCs, SVOCs, and metals were also detected in on site ground water monitoring wells at concentrations exceeding SCDM benchmarks. In February and March of 2007, Burns & McDonnell performed a sediment investigation in the Canal. Fifty-two (52) TarGOST™ Logs and 12 soil/sediment samples were collected from three general locations in the Canal adjacent to the former Crawford Station MGP site. Contamination consistent with MGP wastes were identified the Canal above U.S. EPA recognized sedimentary benchmarks.

Contaminant sources on the 35-acre Peoples Gas property consist of contaminated soil from two areas on site. Free-phase contamination exists at the surface in one area and was observed by the author during a site reconnaissance conducted August 14<sup>th</sup>, 2007. Migration of the contamination to the Canal may have occurred through various utility corridors present on and adjacent to the site. Observed release criteria for the ground water, surface water, and the soil exposure pathway have been demonstrated through chemical analysis. Based on the site characteristics, contaminant characteristics, and recognized environmental and human receptors, the ground water and surface water pathways will be evaluated to determine a HRS score for the site.

### **Section 7.0 References**

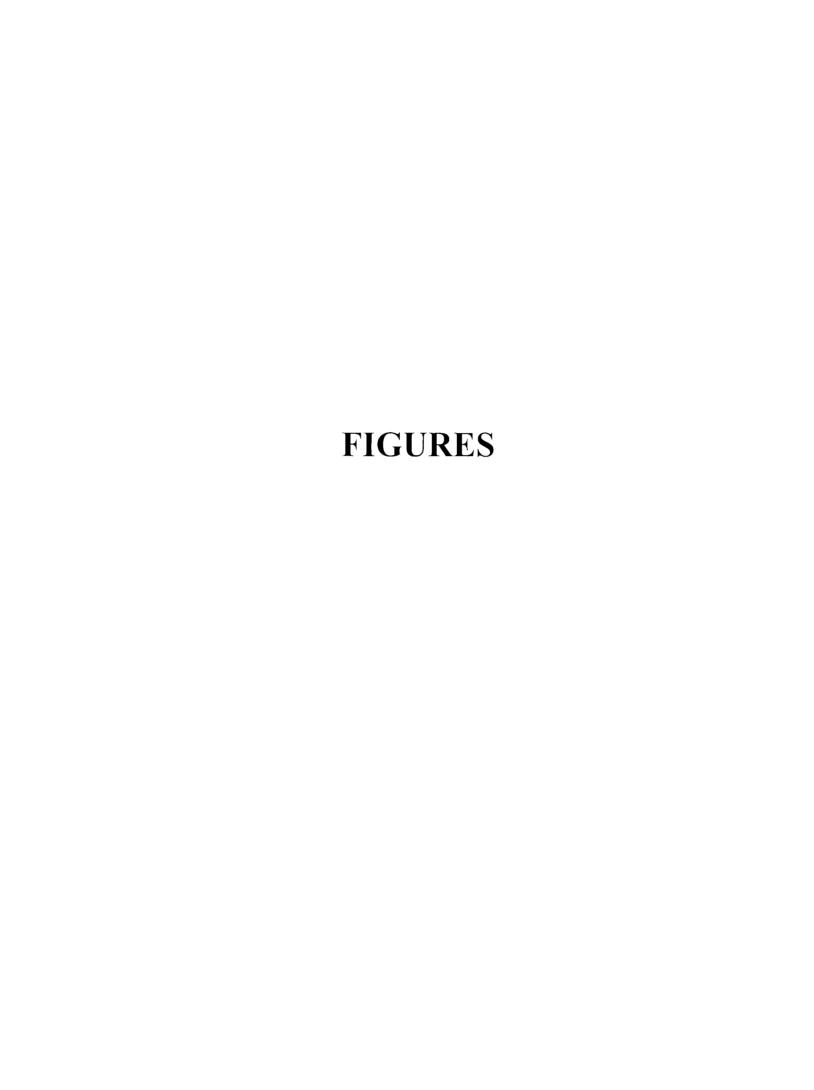
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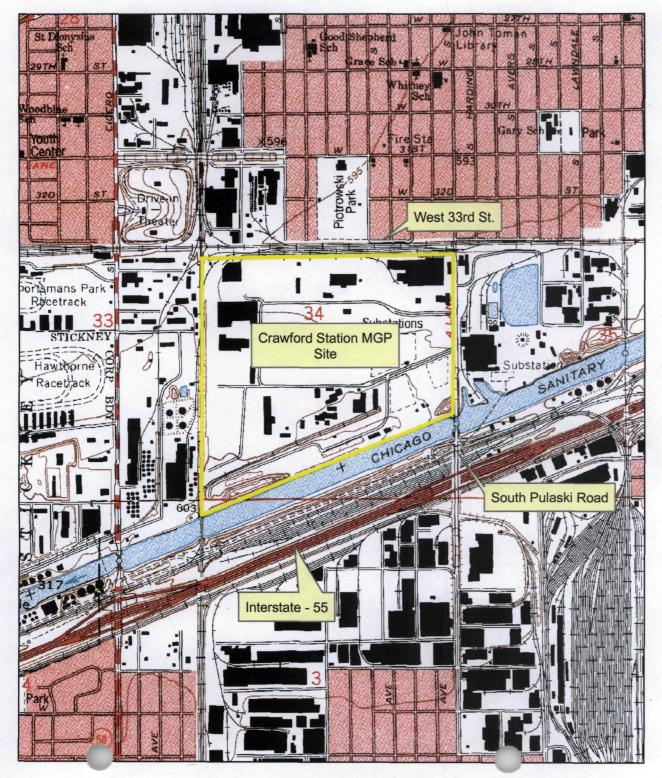
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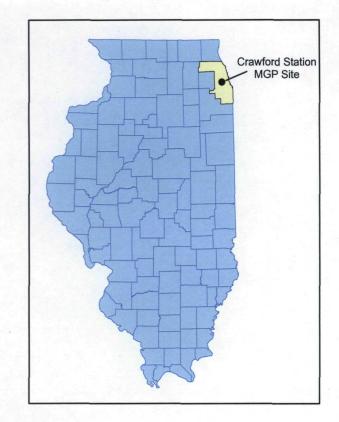




FIGURE - 1
Site LocationMap

0 0.125 0.25 0.5 Miles

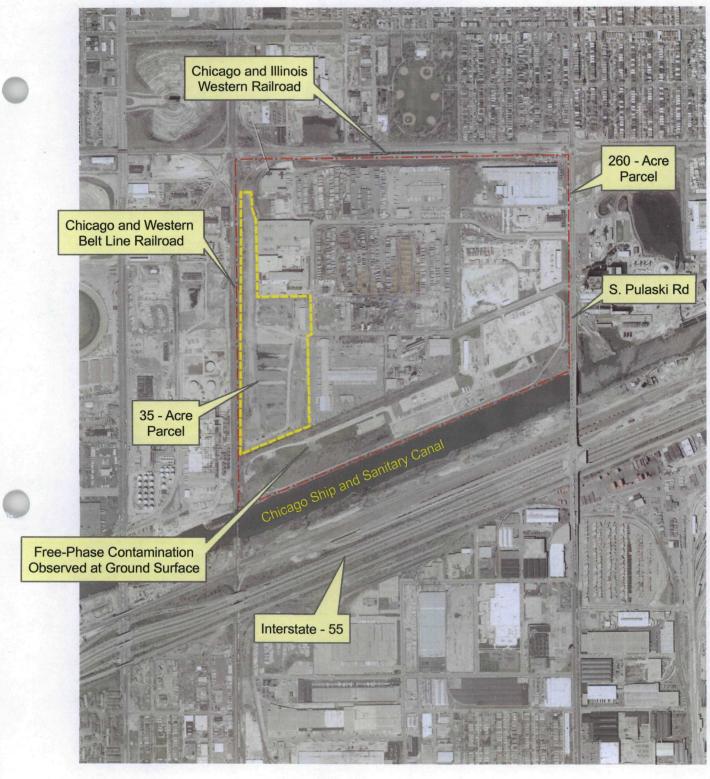
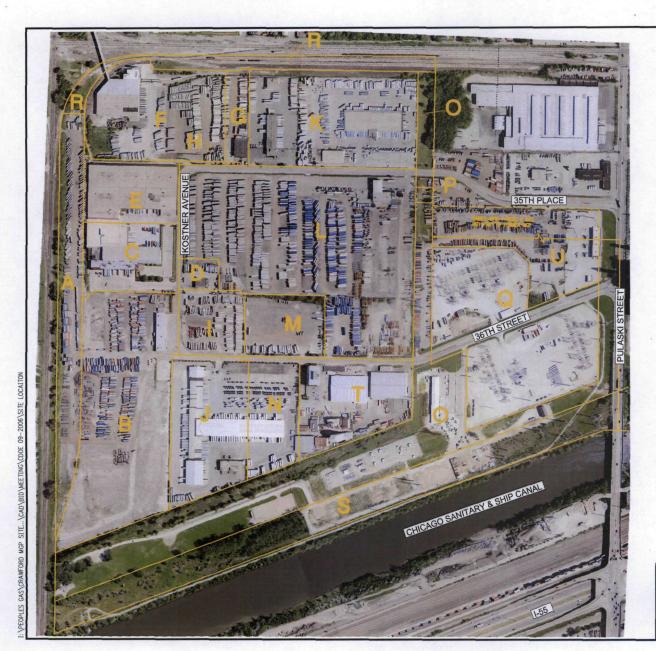




FIGURE - 2 Site Map Crawford Station MGP

0 500 1,000 2,000 Feet



## LEGEND

PARCEL BOUNDARY

FIGURE - 3
Property Parcel Map
Crawford Station MGP Site
October 2007

Peoples Gas Parcels - A,B,L & O





THE PEOPLES GAS LIGHT & COKE COMPANY CHICAGO, ILLINOIS SITE LOCATION MAP CRAWFORD STATION CHICAGO, ILLINOIS

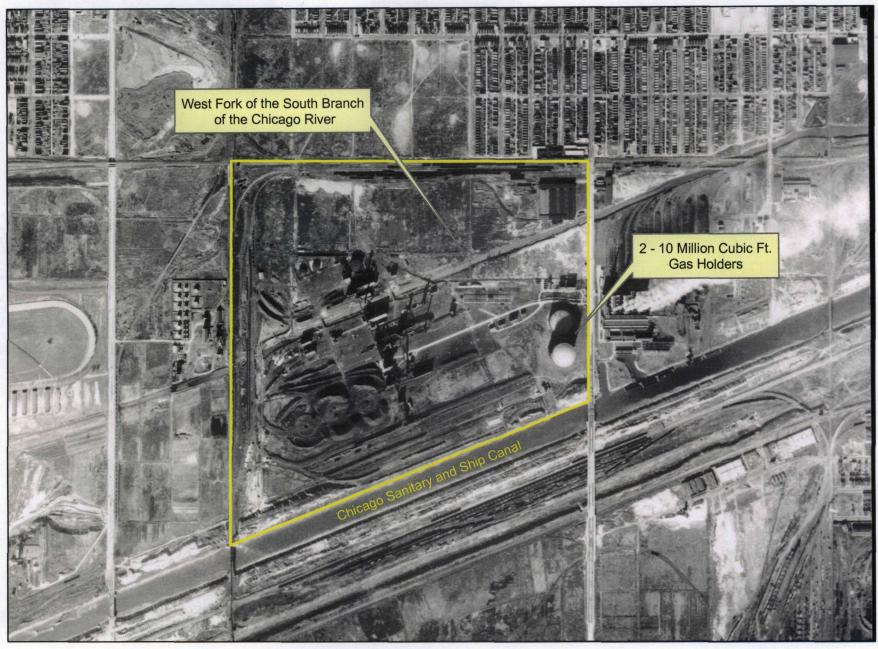
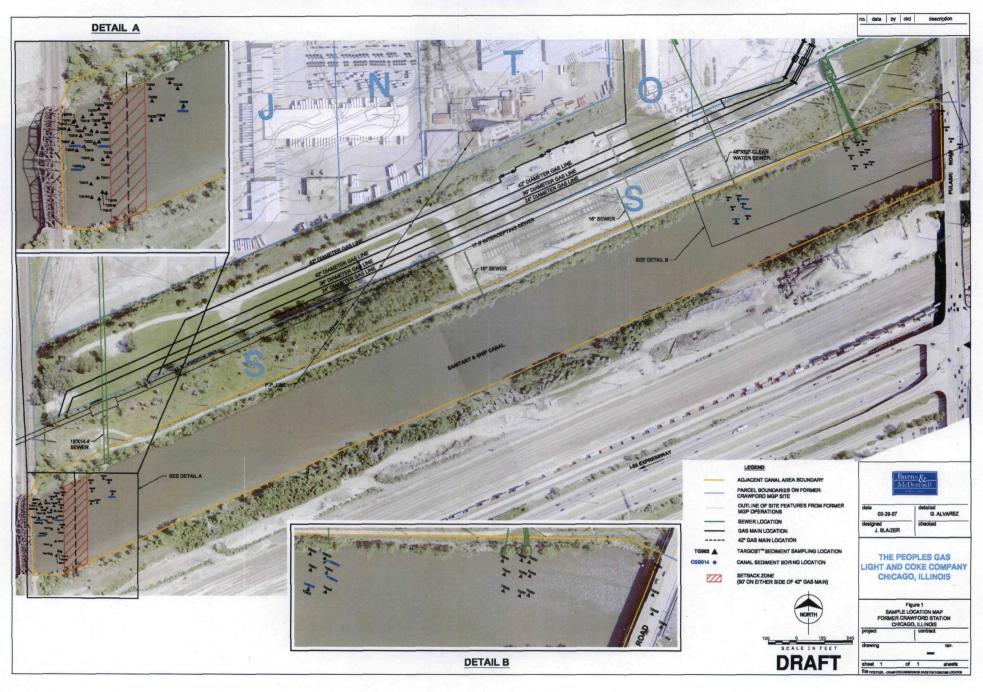




FIGURE - 4 1938 Photo Crawford Station MPG Site

FIGURE - 5
Burns & McDonnell TarGOST and Sediment Sample Location Map



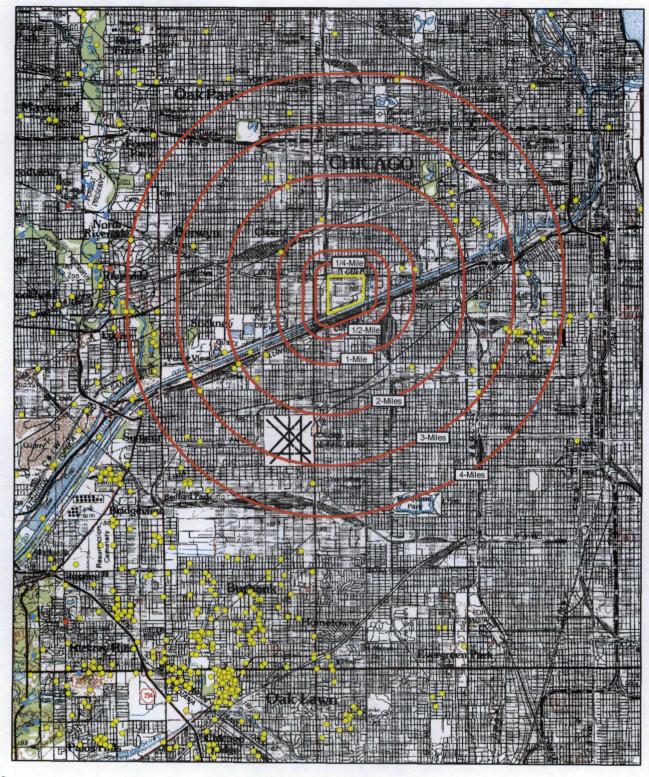




FIGURE - 6 4 - Mile Ground Water TDL Crawford Station MGP October 2007

- O ISGS Well
- Community Water Supply Well
- Non-Community Water Supply Well

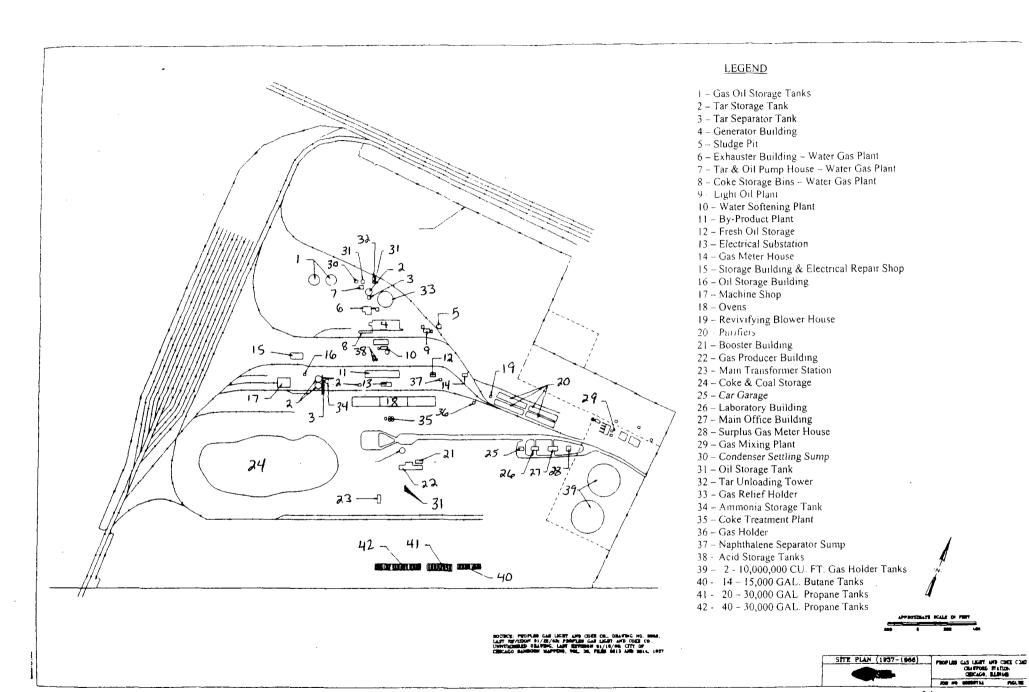
0 1 2 4 Miles





FIGURE - 7
Approximate Location of Soil Contamination on Properties A & B

0 250 500 1,000 Feet



# **DETAIL A**

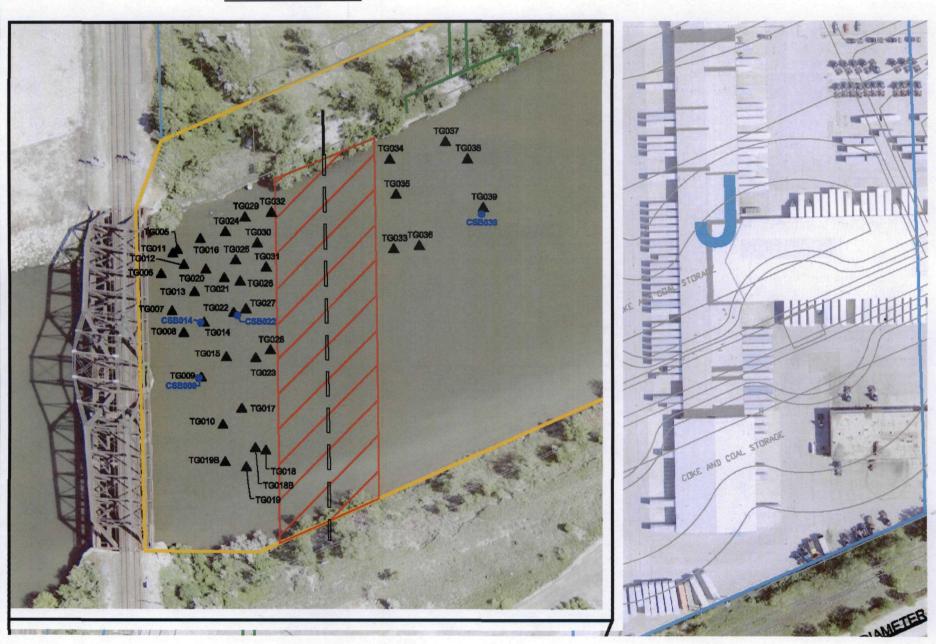
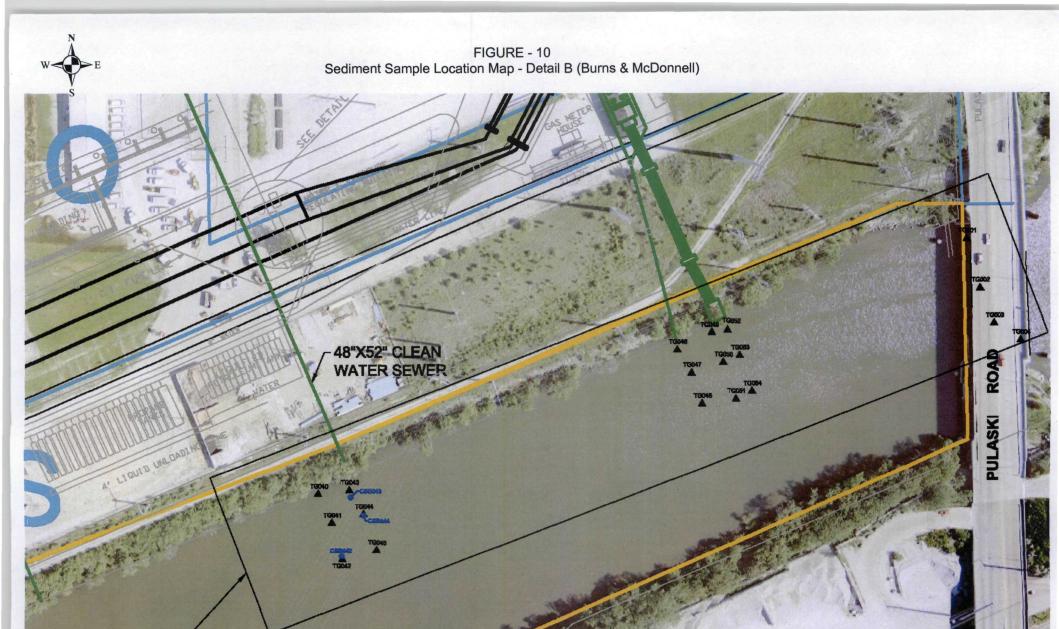


FIGURE - 9
Sediment Sample Location Map - Detail A (Burns & McDonnell)

# **LEGEND**

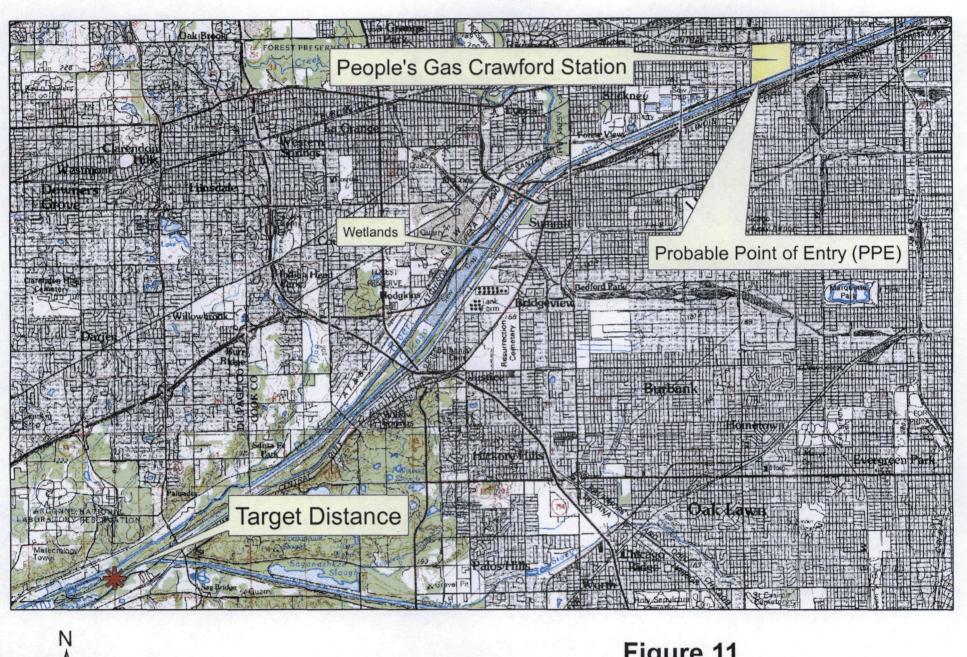
- ▲ TarGOST Location
- Sediment Sample Location



Sediment Sample Location

SEE DETAIL B

TarGOST Location



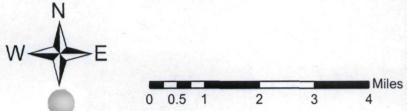
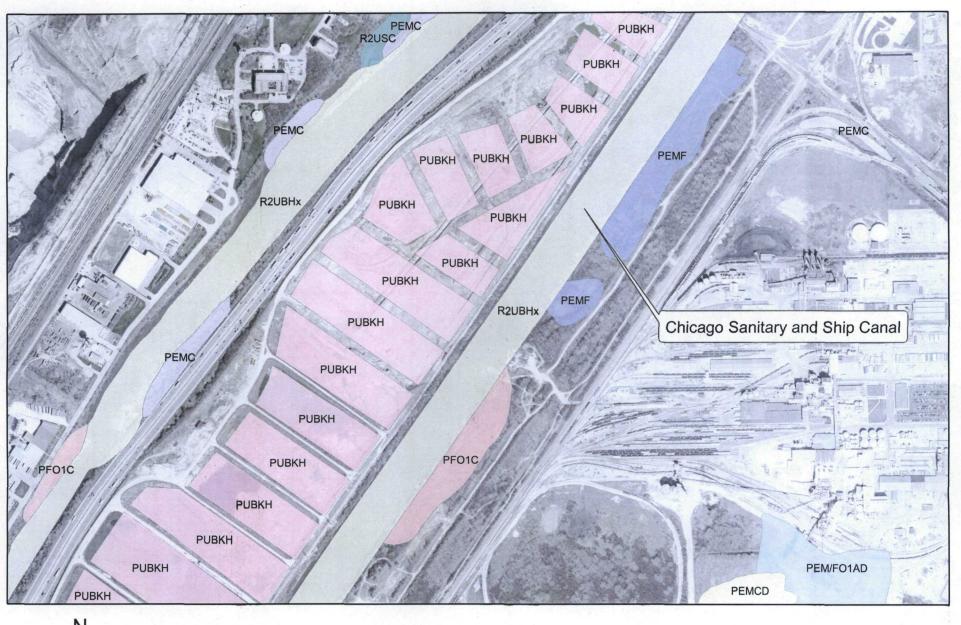


Figure 11
Peoples's Gas Crawford Station
15 Mile Surface Water Pathway Map



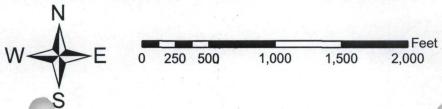


Figure 12
Peoples's Gas Crawford Station
Wetland Location Map